IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No:	10/524,552
Applicant:	Maron Christof
Filed:	October 7, 2005
Title:	METHOD FOR ACTUATING AN ELECTROMECHANICAL PARKING BRAKE DEVICE
TC/A.U.:	3683
Examiner:	Thomas J. Williams
Confirmation No.:	1422
Docket No.:	PC10500US

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Responsive to the Office Action dated September 24, 2007, please amend the above-identified application as follows:

☐   **Amendments to the Specification** begin on page   of this paper.

☐   **Amendments to the Claims** are reflected in the listing of claims which begins on page of this paper.

☐   **Amendments to the Drawings** begin on page   of this paper and include an attached replacement sheet(s).

☒   **Amendments to the Abstract** are on page 2 of this paper. A clean version of the Abstract is on page 5 of this paper.

☒   **Remarks/Arguments** begin on page 3 of this paper.

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Amendment to the Abstract:

The Abstract has been amended as indicated below. A revised Abstract is attached.

ABSTRACT OF THE DISCLOSURE

~~The invention relates to a~~A method for actuating an electromechanical parking brake device for a brake that can be actuated by ~~means of~~ an electromechanical actuator~~, in which the actuator is~~ comprised of an electric motor and of a reduction gear connected downstream of the electric motor and ~~being~~ provided for converting a rotational motion into a translatory motion~~, the electromechanical parking brake being provided in the form of a locking mechanism which can prevent the rotational motion of the actuator in the direction of release and which can be released again by further application~~.

~~————~~In order to guarantee that the electromechanical parking brake device works reliably in all operating states without using a tension force sensor, the ~~invention discloses determining~~method determines and ~~storing~~stores, during the actuation of a parking brake device, a mean value of the torque of the electric motor necessary for generating the application force of the brake corresponding to the parking brake actuation and ~~to~~ simultaneously determines the actuator position and ~~to~~ actuates the electric motor at later points of time in such a way that it generates this torque multiplied by a correction factor $k\eta => 1$ so that the exerted tension force is maintained or increased.

Attachment

Remarks/Arguments:

Objection to the Abstract

      The Abstract stands objected to based on its length and certain terminology. Applicants respectfully submit that the Abstract as amended addresses the Examiner's concerns. Withdrawal of this objection is respectfully requested.

Claim Rejections Under 35 U.S.C. §102 and §103

      Claims 13, 14, 16, 17, 19-21 and 24 stand rejected under 35 U.S.C. §103 as unpatentable over U.S. Patent No. 6,209,689 (Bohm) in view of PCT Publication No. WO 02/46016 (Ewinger et al.) (with US Patent No. 6,738,703 provided as an English language equivalent). Applicants traverse these rejections.

      "To establish a *prima facie* case of obviousness, … the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. §2143. Additionally, as set forth by the Supreme Court in <u>KSR Int'l Co. v. Teleflex, Inc.</u>, No. 04-1350 (U.S. Apr. 30, 2007), it is necessary to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the prior art elements in the manner claimed.

      Independent claim 13 recites a "[m]ethod for actuating an electromechanical parking brake device for a brake that can be actuated by means of an electromechanical actuator, in which the actuator is comprised of an electric motor and a reduction gear that is connected downstream of the electric motor and is provided for converting a rotational motion into a translatory motion, and the electromechanical parking brake device is provided in the form of a locking mechanism which can prevent the rotational motion of the actuator in the direction of release and which can only be released again by further application, wherein during the actuation of the parking brake device, <u>a mean value Mpark of the torque of the electric motor, which is required for exerting the application force of the brake corresponding to the application of the parking brake, is determined and stored</u> while the actuator position (φ) is simultaneously detected, and the electric motor is actuated at later points in time in such a fashion that it generates said torque Mpark <u>that is multiplied by a correction factor kη=>1</u> in order to maintain or increase the exerted tension force."

      The Office Action indicates that Bohm teaches a mean value of the torque of the electric motor, as represented by $F_{actF,nominal}$, is determined and stored. Applicants respectfully submit that the $F_{actF,nominal}$ value is not a mean value of the torque, but instead is an actual nominal

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value of <u>a desired actuating force</u>, as explained in Bohm at column 3, lines 22-30. The identified value is neither a mean value or a value of torque.
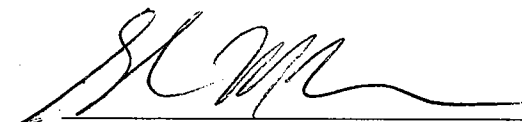
Furthermore, Bohm does not teach or suggest compensating this value by a correction factor. To the contrary, as explained at column 4, lines 33-50, this $F_{actF,nominal}$ value is continuously monitored and the control unit modifies other variables in response to the then current value of $F_{actF,nominal}$. Ewinger et al. similarly teaches monitoring of the actual braking force and does not overcome the shortcomings of Bohm. The cited references, alone or in any reasonable combination, fail to teach or suggest each limitation of the claimed invention.

It is respectfully submitted that independent claim 13 is in condition for allowance. Claims 14-24 each depend from claim 13 and therefore each should each be allowed for at least the reasons set forth above.

It is respectfully submitted that each of the pending claims is in condition for allowance. Early reconsideration and allowance of each of the pending claims are respectfully requested.

If the Examiner believes an interview, either personal or telephonic, will advance the prosecution of this matter, it is respectfully requested that the Examiner get in contact with the undersigned to arrange the same.

Respectfully submitted,

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Attorneys for Applicants

RPS/GMM/dhm

Attachments: Abstract

Dated: December 19, 2007

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The Director is hereby authorized to charge or credit Deposit Account No. **18-0350** for any additional fees, or any underpayment or credit for overpayment in connection herewith.

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ABSTRACT OF THE DISCLOSURE

A method for actuating an electromechanical parking brake device for a brake that can be actuated by an electromechanical actuator comprised of an electric motor and of a reduction gear connected downstream of the electric motor and provided for converting a rotational motion into a translatory motion. In order to guarantee that the electromechanical parking brake device works reliably in all operating states without using a tension force sensor, the method determines and stores, during the actuation of a parking brake device, a mean value of the torque of the electric motor necessary for generating the application force of the brake corresponding to the parking brake actuation and simultaneously determines the actuator position and actuates the electric motor at later points of time in such a way that it generates this torque multiplied by a correction factor $k\eta = > 1$ so that the exerted tension force is maintained or increased.